CLAIMS:

1) A gateway adapter, including

    a) a PBX interface for connection to a PBX system entity to communicate with the PBX system entity using a PBX protocol, the PBX system entity establishing a functional domain within which call sessions can originate and terminate;

    b) a network interface for communicating with a packet switched network entity establishing a packet switched network domain; and

    c) an interoperation functional unit associated with said PBX interface and with said network interface, said interoperation functional unit being operative to effect manipulations on data received by said interfaces from the PBX system entity and the packet switched network entity, respectively, to allow the PBX system entity and the packet switched network entity to interoperate.

2) A gateway adapter as defined in claim 1, wherein the PBX protocol is a protocol for a circuit-switched PBX system entity.

3) A gateway adapter as defined in claim 2, wherein the PBX system entity has a plurality of trunk ports, said gateway adapter being operative to simultaneously maintain a plurality of media signals exchange transactions with the PBX domain through respective external telephone line ports.

4) A gateway adapter as defined in claim 3, wherein said gateway adapter is operative to generate control data in the PBX protocol.

5)   A gateway adapter as defined in claim 4, wherein the control data in the PBX protocol is output from said PBX interface.

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6)   A gateway adapter as defined in claim 4, wherein said interoperation functional unit includes a plurality of media gateways, each media gateway being operative to convert media signals received from the packet switched network in a format suitable for application to one of the external telephone line ports.

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7)   A gateway adapter as defined in claim 6, wherein the media signals convey audio information.

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8)   A gateway adapter as defined in claim 7, wherein the media signals received from the packet switched network include data packets.

20   9)   A gateway adapter as defined in claim 7, wherein each media gateway is operative to convert media signals at one of the external telephone line ports into data packets suitable for transmission through the packet switched network.

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10)   A gateway adapter as defined in claim 3, wherein said interoperation functional unit is responsive to communication control data from a remote network services unit to manage a call session involving the PBX system entity.

30   system entity.

11)   A gateway adapter as defined in claim 10, wherein the network services unit provides call-processing services for the call session.

12) A gateway adapter as defined in claim 11, wherein the call session has a flow of media signals, said interoperation functional unit being operative to process the media signals at least in part in dependence upon the communication control data from the network services unit.

13) A gateway adapter as defined in claim 3, wherein said interoperation functional unit includes a device emulator, said device emulator is operative to communicate with a remote network services unit through said network interface and emulate a device different from said gateway adapter.

14) A gateway adapter as defined in claim 13, wherein the device different from said gateway adapter is a telephone terminal of a first type.

15) A gateway adapter as defined in claim 14, wherein the PBX system entity is adapted to connect to a telephone terminal of a second type that is different from the telephone terminal of the first type.

16) A gateway adapter as defined in claim 3, wherein said gateway adapter is operative to maintain a plurality of call sessions simultaneously, each call session having media signals travelling on a path that extends outside the functional domain established by the PBX system entity, said gateway adapter being further operative to direct the media signals of a selected call session from the plurality of call sessions to a certain telephone terminal connected to the PBX system entity.

17) A gateway adapter as defined in claim 16, wherein
said gateway adapter is responsive to a control signal
from the certain telephone terminal to direct to the
certain telephone terminal the media signals of a call
session from the plurality of call sessions other than
the selected call session.

18) A combination, comprising:
a) a circuit switched PBX system entity for connection
to a plurality of telephone terminals; and
b) a gateway adapter associated with said PBX system
entity, said gateway adapter allowing at least one of
the telephone terminals to establish a call session
with a remote entity residing in a packet switched
network.

19) A combination as defined in claim 18, wherein said
gateway adapter is responsive to communication control
data from a network services unit residing in the packet
switched network to manage the call session.

20) A combination as defined in claim 19, wherein the
network services unit provides call processing services
in relation to the call session.

21) A combination as defined in claim 20, wherein said
gateway adapter includes:
a) a PBX interface for connection to said PBX system
entity to communicate with said PBX system entity
using a PBX protocol, said PBX system entity
establishing a functional domain within which call
sessions can originate and terminate;

b) a network interface for communicating with the packet switched network entity establishing a packet switched network domain; and

c) an interoperation functional unit associated with said PBX interface and with said network interface, said interoperation functional unit being operative to effect manipulations on data received by said interfaces from said PBX system entity and the packet switched network entity, respectively, to allow said PBX system entity and the packet switched network entity to interoperate.

22) A combination as defined in claim 21, wherein said PBX system entity has a plurality of trunk ports, said gateway adapter is operative to simultaneously maintain a plurality of media signals exchange transactions with the PBX domain through respective external telephone line ports.

23) A combination as defined in claim 22, wherein said interoperation functional unit includes a plurality of media gateways, each media gateway being operative to convert media signals received from the packet switched network in a format suitable for application to one of the external telephone line ports.

24) A combination as defined in claim 23, wherein the media signals convey audio information.

25) A combination as defined in claim 24, wherein each media gateway is operative to convert media signals at one of the trunk ports into data packets suitable for transmission through the packet switched network.

26) A combination as defined in claim 21, wherein said interoperation functional unit includes a device emulator, said device emulator being operative to communicate with the remote network services unit

5   through said network interface and emulate a device different from said gateway adapter.

27) A combination as defined in claim 26, wherein the device different from said gateway adapter is a

10   telephone terminal of a first type.

28) A combination as defined in claim 27, wherein the PBX system entity is adapted to connect to a telephone terminal of a second type that is different from the

15   telephone terminal of the first type.

29) A combination as defined in claim 21, wherein said gateway adapter is operative to maintain a plurality of call sessions simultaneously, each call session having

20   media signals travelling on a path that extends outside the functional domain established by the PBX system entity, said gateway adapter being further operative to direct the media signals of a selected call session from the plurality of call sessions to a certain telephone

25   terminal connected to the PBX system entity.

30) A combination as defined in claim 29, wherein said gateway adapter is responsive to a control signal from a terminal connected to said PBX system entity to direct

30   to the certain telephone terminal the media signals of a call session from the plurality of call sessions other than the selected call session.

31) A method for upgrading a PBX system entity operative to provide call processing functions, said method comprising:

   a) configuring the call processing functions of said PBX system entity such that it operates in a passthrough manner in terms of call origination and termination; and

   b) connecting to the PBX system entity a device allowing the PBX system entity to interoperate with a remote network services unit residing in a packet switched network that is operative to provide call processing functions on call sessions established through said PBX system entity.

32) A gateway adapter, including

   a) a PBX interface means for connection to a PBX system entity to communicate with the PBX system entity using a PBX protocol, the PBX system entity establishing a functional domain within which call sessions can originate and terminate;

   b) a network interface means for communicating with a packet switched network entity establishing a packet switched network domain; and

   c) interoperation means associated with said PBX interface means and with said network interface means, said interoperation means being operative to effect manipulations on data received by said interface means from the PBX system entity and the packet switched network entity, respectively, to allow the PBX system entity and the packet switched network entity to interoperate.

33) An apparatus for providing telephony-related services to a plurality of telephone terminals of a first type,

said apparatus including a network interface for exchanging signals with a remote network services unit through a packet switched network, the apparatus implementing a device emulator to make the apparatus

5   behave toward the remote network services unit as a telephone terminal of a second type, where the telephone terminal of the first type is different from the telephone terminal of the second type.

10   34) An apparatus as defined in claim 33, wherein said apparatus includes a gateway adapter, including

a) a PBX interface for connection to a PBX system entity to communicate with the PBX system entity using a PBX protocol, the PBX system entity establishing a

15   functional domain within which call sessions can originate and terminate;

b) a network interface for communicating with a packet switched network entity establishing a packet switched network domain; and

20   c) an interoperation functional unit associated with said PBX interface and with said network interface, said interoperation functional unit being operative to effect manipulations on data received by said interfaces from the PBX system entity and the packet

25   switched network entity, respectively, to allow the PBX system entity and the packet switched network entity to interoperate.

35) An apparatus as defined in claim 34, wherein the PBX

30   protocol is a protocol for a circuit-switched PBX system entity.

36) An apparatus as defined in claim 35, wherein the PBX system entity has a plurality of trunk ports, said

gateway adapter is operative to simultaneously maintain a plurality of media signals exchange transactions with the PBX domain through respective external telephone line ports.

37) An apparatus as defined in claim 36, wherein said gateway adapter is operative to generate control data in the PBX protocol.

38) An apparatus as defined in claim 37, wherein the control data in the PBX protocol is output from said PBX interface.

39) An apparatus as defined in claim 40, wherein said interoperation functional unit includes a plurality of media gateways, each media gateway being operative to convert media signals received from the packet switched network in a format suitable for application to one of the trunk ports.

40) An apparatus as defined in claim 39, wherein the media signals convey audio information.

41) An apparatus as defined in claim 40, wherein the media signals received from the packet switched network include data packets.

42) An apparatus as defined in claim 43, wherein each media gateway is operative to convert media signals at one of the trunk ports into data packets suitable for transmission through the packet switched network.

43) An apparatus as defined in claim 36, wherein said interoperation functional unit is responsive to

communication control data from a remote network services unit to manage a call session involving the PBX system entity.

5   44)   An apparatus as defined in claim 43, wherein the network services unit provides call processing services for the call session.

45)   An apparatus as defined in claim 44, wherein the call
10   session has a flow of media signals, said interoperation functional unit being operative to process the media signals at least in part in dependence upon the communication control data from the network services unit.
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46)   An apparatus as defined in claim 45, wherein the call session is established between a first and second telephone terminals connected to the PBX system entity, said gateway adapter being operative to exchange media
20   signals with the first telephone terminal through a first one of the trunk ports and exchange media signals with the second telephone terminal through a second one of the trunk ports.

25   47)   An apparatus as defined in claim 46, wherein the media signals of the call session pass through said network interface.

48)   An apparatus as defined in claim 46, wherein the
30   media signals of the call session do not pass through said network interface.

49)   An apparatus as defined in claim 36, wherein said interoperation functional unit includes a device

emulator, said device emulator is operative to communicate with a remote network services unit through said network interface and emulate a device different from said gateway adapter.

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50) An apparatus as defined in claim 49, wherein the device different from said gateway adapter is a telephone terminal of a first type.

10 51) An apparatus as defined in claim 50, wherein the PBX system entity is adapted to connect to a telephone terminal of a second type that is different from the telephone terminal of the first type.

15 52) An apparatus as defined in claim 36, wherein said gateway adapter is operative to maintain a plurality of call sessions simultaneously, each call session having media signals travelling on a path that extends outside the functional domain established by the PBX system 20 entity, said gateway adapter being further operative to direct the media signals of a selected call session from the plurality of call sessions to a certain telephone terminal connected to the PBX system entity.

25 53) An apparatus as defined in claim 52, wherein said gateway adapter is responsive to a control signal from the certain telephone terminal to direct to the certain telephone terminal the media signals of a call session from the plurality of call sessions other than the 30 selected call session.

54) An apparatus for providing telephony-related services to a plurality of telephone terminal means of a first type, said apparatus including a network interface means

for exchanging signals with a remote network services unit through a packet switched network, the apparatus implementing a device emulator means to make the apparatus behave toward the remote network services unit as a telephone terminal means of a second type, where the telephone terminal means of the first type is different from the telephone terminal means of the second type.